

**ABSTRACT OF THE DISCLOSURE**

5 A quantity of internal EGR gases remaining in an engine is estimated in accordance with an exhaust valve closing timing, an intake valve opening timing and an engine speed. The estimated internal EGR quantity is a sum of a base quantity and an increase correction quantity determined in accordance with a valve overlap period, its middle angular position in crankshaft rotation and intake pressure. The estimated internal EGR  
10 quantity is used for estimating an engine cylinder intake air quantity and for engine control such as ignition timing control, and intake air quantity control.

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